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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREAS ARNING, CHRISTOPH LINGENFELDER,
JUERGEN JAEGER, and OLIVER SCHMIDT

Appeal 2008-3008
Application 10/044,782
Technology Center 2100

Decided[1]: March 30, 2009

Before JOSEPH L. DIXON, HOWARD B. BLANKENSHIP, and
THU A. DANG, *Administrative Patent Judges.*

DIXON, *Administrative Patent Judge.*

DECISION ON APPEAL

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

I. STATEMENT OF THE CASE

A Patent Examiner rejected claims 1-13. The Appellants appeal therefrom under 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

A. INVENTION

The invention at issue on appeal relates to the field of data clustering and in particular to clustering algorithms and quality determination. (Spec. 1.)

B. ILLUSTRATIVE CLAIM

Claim 1, which further illustrates the invention, follows.

> 1. A method for determining the quality of a result of a clustering data processing operation, the result comprising a set of clusters, a cluster having a set of buckets for each variable, the method comprising the steps of:
>
> a) determining a foreground frequency of a bucket within a first cluster;
>
> b) determining a background frequency of the bucket with respect to all of the clusters;
>
> c) comparing the foreground and background frequencies; and
>
> d) determining a quality index based on the comparison.

C. REFERENCES

The Examiner has not relied upon any prior art.

D. REJECTIONS

The Examiner makes the following rejections:

"Regarding Claims 1-13 the claimed invention is directed to non-statutory subject matter." (Final Rej. 2; Ans. 3).

The Examiner has withdrawn the rejections under 35 U.S.C. § 112, second paragraph. (Ans. 7).

II. ISSUE

Whether claims 1-13 are directed to patent eligible subject matter under 35 U.S.C. § 101.

III. PRINCIPLES OF LAW

As stated in *In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008), and reiterated *In re Ferguson*, No. 2007-1232, 2009 WL 565074 at *3 (Fed. Cir. 2009), under the machine-or-transformation test "[a] claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing."

IV. ANALYSIS

Appellants rely upon a prior analysis/test with respect to the claimed invention setting forth a useful, concrete, and tangible result. As an ancillary conclusion, we disagree with Appellants' conclusion, and we find that the claimed invention is not directed to a useful, concrete, and tangible result, and we would affirm the Examiner's rejection based upon this prior test.

Since the time of the filing of Appellants' Brief and Reply Brief, our reviewing court has clarified the area of law with respect to patent eligible or statutory subject matter under 35 U.S.C. § 101 in *In re Bilski*, 545 F.3d 943 and *In re Ferguson*, No. 2007-1232, 2009 WL 565074.

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101. "[N]o patent is available for a discovery, however useful, novel, and nonobvious, unless it falls within one of the express categories of patentable subject matter of 35 U.S.C. § 101." *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483 (1974).

Claims 1-12 are drafted in the form of a process. We take base claim 1 as representative of these claims. Claim 1, if directed to statutory subject matter, falls within the statutory class of "process."

"A process is . . . an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing." *Cochrane v. Deener*, 94 U.S. 780, 788 (1877). "'Transformation and reduction of an article "to a different state or thing" is the clue to the patentability of a process claim that does not include particular machines.'" *Diamond v. Diehr*, 450 U.S. 175, 184 (1981) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972)).

Our reviewing court recently held that the "useful, concrete and tangible result" inquiry, first set forth in *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994) (en banc), is inadequate to determine whether a claim is patent-eligible under § 101. *See In re Bilski*, 545 F.3d 943, 959-60 (Fed.

Cir. 2008) (en banc). The Supreme Court's "machine-or-transformation test, properly applied, is the governing test for determining patent eligibility of a process under § 101." *Id.* at 956. "A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing." *Id.* at 954.

Claim 1 fails the first branch of the "machine-or-transformation test." The claim does not recite, or require, that the steps of "determining," and "comparing" be performed on, or by, a particular machine or apparatus. Furthermore, the claim does not require that the steps be performed on *any* machine or apparatus.

We acknowledge that claim 1 is broad enough to cover both a machine implementation and non-machine implementation of the steps recited. However, that the claim might read on statutory embodiments does not mean that the claim passes muster under § 101. "The four categories [of § 101] together describe the exclusive reach of patentable subject matter. If a claim covers material not found in any of the four statutory categories, that claim falls outside the plainly expressed scope of § 101 even if the subject matter is otherwise new and useful." *In re Nuijten,* 500 F.3d 1346, 1354 (Fed. Cir. 2007), *cert. denied*, __ U.S __, 129 S. Ct. 70 (2008).[2]

Claim 1 also fails the second branch of the "machine-or-transformation" test. The claim does not contain or require an article that is

[2] We need not, and do not, reach the question of whether limiting claim 1 to the steps being performed on a computer would be sufficient to meet either branch of the "machine-or-transformation" test.

transformed and reduced "to a different state or thing." *See Diehr*, 450 U.S. at 184.

In *Bilski*, our reviewing court identified a circumstance in which *electronic* transformation of *data* into *a particular visual depiction of a physical object on a display* may be considered a transformation sufficient to render a claimed process patent-eligible. *See Bilski*, 545 F.3d at 962-63 (discussing *In re Abele*, 684 F.2d 902, 908-09 (CCPA 1982)). However, as we have indicated, instant claim 1 does not require any kind of electronic transformation of data into a different state or thing. "Of course, a claimed process wherein all of the process steps may be performed entirely in the human mind is obviously not tied to any machine and does not transform any article into a different state or thing. As a result, it would not be patent-eligible under § 101." *Bilski*, 545 F.3d at 961 n.26.

From our review of Appellants' claimed invention in independent claim 1, as interpreted in light of Appellants' Specification, we find that the claimed invention is not tied to a particular machine or apparatus nor does the claimed invention transform a particular article into a different state or thing. Therefore, Appellants' independent claim 1 is not directed to patent eligible subject matter under 35 U.S.C. § 101. Accordingly, we will sustain the Examiner's rejection of independent claim 1 and dependent claims 2-9 depending therefrom.

Appellants similarly argue that independent claims 10 and 11 are directed to methods or processes with a useful, concrete, and tangible result. (App. Br. 6-9). As discussed above, we find independent claims 10 and 11, as interpreted in light of Appellants' Specification, are processes not tied to a

particular machine or apparatus nor do the claimed inventions transform a particular article into a different state or thing. Therefore, Appellants' independent claims 10 and 11 and dependent claim 12 are not directed to patent eligible subject matter under 35 U.S.C. § 101.

Claim 13 poses a number of questions with respect to claim interpretation which impact upon our analysis under 35 U.S.C. § 101. It is unclear whether a process, as discussed above and found not to be patent eligible, is set forth in the claim or rather an article of manufacture or machine (as may be implied by the Summary of the Claimed Invention at page 3 of the Brief), is set forth in claim 13. We limit our discussion to consideration of whether claim 13 is directed to a machine or article of manufacture, since on its face the claim expressly sets forth "A computer program product stored on a computer usable medium."

> 13. A computer program product stored on a computer usable medium for determining the quality of a result of a clustering data processing operation, the result comprising a set of clusters, a cluster having a set of buckets for each variable, the method comprising the said program product comprising:
>
> determining first subprocesses for a foreground frequency of a bucket within a first cluster;
>
> determining second subprocesses for a background frequency of the bucket with respect to all of the clusters;
>
> comparing third subprocesses the foreground and background frequencies; and
>
> determining fourth subprocesses a quality index based on the comparison.

A transitory, propagating signal . . . is not a 'process, machine, manufacture, or composition of matter.' Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101." *In re Nuijten*, 500 F.3d at 1357.

We interpret independent claim 13 in light of the Specification, but find no express definition of a "computer usable medium" therein. Appellants' Specification merely sets forth a memory 52 at page 13. It is unclear what specific structure the memory 52 corresponds to and if the claimed program product would be stored therein or elsewhere in the system in Figure 5, since the Summary of the Claimed Invention does not identify a specific structure for the product on, or in, any computer usable medium. The elements of independent claim 13 are drafted in process format. Therefore, it appears that the underlying method is merely being claimed.

In Appellants' arguments at page 7 of the Appeal Brief, Appellants state:

> Similarly, referring to claim 13, claim 13 is directed to a computer program product for determining the quality of a result of a clustering data processing operation, which includes the steps of: determining first subprocesses for a foreground frequency of a bucket within a first cluster; determining second subprocesses for a background frequency of the bucket with respect to all of the clusters; comparing third subprocesses the foreground and background frequencies; and determining fourth subprocesses a quality index based on the comparison. Determining a foreground and a background frequency; comparing the foreground and background frequencies; and determining a quality index are steps that are directed to a useful, tangible, result, namely, determining the quality of a result of a clustering data processing operation. (Emphasis added.)

Appellants' only arguments merely reiterate the claim limitations and reach a conclusion. We find that it is the underlying process which is embodied in a "computer usable medium," as recited in claim 13, and the claim is not limited to statutory subject matter since the Specification does not identify what the "computer usable medium" is. We find that the broadest reasonable interpretation of this "computer usable medium" may be a data signal embodied in a carrier wave since the Specification provides no limiting definition for the "medium."

"If a claim covers material not found in any of the four statutory categories, that claim falls outside the plainly expressed scope of § 101 even if the subject matter is otherwise new and useful." *In re Nuijten*, 500 F.3d at 1354. Therefore, claim 13 is not patent eligible subject matter under 35 U.S.C. § 101.

V. CONCLUSION

For the aforementioned reasons, the find that the Examiner correctly rejected claims 1-13 as not being drawn to patent eligible subject matter under 35 U.S.C. § 101.

VI. ORDER

We affirm the rejection of claims 1-13 under 35 U.S.C. § 101.

AFFIRMED

msc

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